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Date document received

Signature

#3287

K/EM-450

SANITIZED VERSION OF TRIAL CASCADE INVENTORY PROCEDURES (JUNE 18, 1946)

(SANITIZED VERSION OF CRD DOCUMENT #KZ-1166)

Compiled by
S. G. Thornton
Environmental Management Division
OAK RIDGE K-25 SITE
for the Health Studies Agreement

April 23, 1996

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

CARBIDE AND CARBON CHEMICALS CORPORATION

PROCESS MATERIALS DEPARTMENT — Kem. File

PROCESS DIVISION

Date: June 18, 1946

TRIAL CASCADE INVENTORY PROCEDURES

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CARBIDE AND CARBON CHEMICALS CORPORATION
PROCESS DIVISION

Process Materials Department

TO: G. T. E. Sheldon

DATE: June 18, 1946

SUBJECT: Trial Inventory Procedures

The attached procedures have been prepared by A. de la Garza, A. Tuholsky and the Technical Analysis Section for use in the trial inventory of the cascade scheduled for 10:00 A.M., June 19, 1946. The trial inventory will provide a plant-wide time study for inventory coordination and will furnish information regarding the accuracy to be expected under the existing conditions.

Mr. Tuholsky will be the Inventory Coordinator and will assist the Technical Assistant General Foreman during the inventory period.

We wish to thank the operating supervisors for their valuable assistance. Further comment on these procedures and the trial inventory will be appreciated.

R. W. Levin

R. W. Levin

Approved by: E. D. Flickinger

E. D. Flickinger

RWL/jw

PROCEDURES FOR TAKING INVENTORY OF A TYPICAL BUILDING

1. ANNOUNCEMENT OF INVENTORY TIME:

The Area Foreman will notify the Building Foreman of the approximate set time. The Area Foreman on duty will be given this information by phone from the Central Control Room at least eight hours in advance of the set inventory time.

Two hours before the set inventory time, the inventory time will be announced over the public address system. This announcement will be repeated a half-hour before the set time. At the set time, the final announcement will be made.

The taking of data is to start when the final announcement is made over the public address system.

At shift change, the information will be passed on to the next shift.

2. PREPARATION ON BUILDING OPERATIONS:

During the eight hour period before inventory time, no cell will be purged without the permission of the Technical Assistant General Foreman.

Except in emergencies, no changes at all will be made during the two hour period before inventory time. If a change is made or must be made, notify the Technical Assistant General Foreman in the Central Control Room.

Changes are defined to be the following operations:

a. Valving cells off-stream and on-stream.
b. Placing cells on inverse and direct recycle.
c. Adjusting building or stand-by datum pressures.
d. Adjusting tails pressures or control valve set points.
e. Changing cells from automatic to manual control, and vice versa.
f. Changing or adjusting stage temperatures.

3. TAKING OF DATA:

There are four data sheets to each building.

Sheet No. 1 consists of tails pressure readings, building valving, datum, and cell status. It is to be filled in by the building crew leader.

Sheet No. 2 consists of control valve positions and building board pressures. It is to be filled in by one of the utility operators.

Sheet No. 3 consists of stage temperature readings. This sheet is to be filled in by one of the utility operators.

Sheet No. 4 consists of line recorder data. It is to be filled in by the line recorder operator.

The utility operator covering the gallery, cell floor, and basement is to be brought to the operating floor to fill one of the sheets filled by the utility operators.

The taking of data is to start when the final announcement of inventory time is made over the public address system.

Fifteen minutes after the start of taking data, the four building data sheets of each building should have been completed. The crew leader of each building should turn the completed sheets to the building foreman.

The building foreman should now have twelve data sheets. He should inspect the data on all sheets for correctness. If there are any doubtful readings, they should be rechecked immediately. If the building foreman approves the data sheets, he is to sign them and send them to his area foreman's office. The twelve sheets for the three buildings should be at the area foreman's office twenty-five minutes after the announcement of inventory time.

The completed data for the area will be picked up at the area foreman's office by Process Materials Department personnel.

4. INSTRUCTIONS ON TAKING DATA:

1. All readings, except the control valve position, must be recorded as the actual pressure and temperature; that is, the instrument factor must be applied to the dial reading.

2. When reading a PI or PR, the instrument must be tapped before the reading is taken.

3. When reading a dial instrument, the eye should be held directly level with the tip of the pointer.

4. If a pointer is vibrating or oscillating, the midpoint of the travel is recorded.

5. OPERATIONS AFTER INVENTORY:

Except in emergencies, no changes at all will be made and no cells will be evacuated to the cascade or purged to the purge system until the Technical Assistant General Foreman in the Central Control Room announces the end of the inventory period. If a change must be made or a cell must be purged, notify the Technical Assistant General Foreman. (Changes are defined in Part 2: Preparation of Building Operations.)

Normal operations are to be resumed when the announcement that the inventory period is over is made by the Technical Assistant General Foreman.

6. LINE RECORDER OPERATIONS AND INSTRUCTIONS:

Two hours prior to inventory time, set one line recorder on the top cell of the building, and set the other line recorder on the middle cell of the building. The middle cell is the middle even number cell.

If only one line recorder is in operation, set this line recorder on the top cell of the building.

Record analysis readings in Sheet No. 3, every thirty minutes, starting one hour and a half before inventory time. The last reading is to be at inventory time.

At inventory time, a Hoke sample is to be taken from the top cell of the building.

The traps on the line recorder evacuation system are to be flashed back to the cascade before inventory time. Once they are emptied, these traps are not to be used again until after the inventory period.

At least eight hours advance notice of inventory time will be given Line Recorder Maintenance so that the flashing of the traps will be completed before inventory time.

Time Started _____ Sheet No. 1

Time Finished _____ Building _____

Data Taken BY _____ Shift _____

Date _____

BUILDING VALVING

Designate thus: "O" for open; "S" for shut

A Normal BP	(1)_____	B Normal Outlet	(8)____
A Spare BP	(2)_____	A Normal Outlet	(9)____
B Spare BP	(3)_____	A Spare Outlet	(10)____
B Normal BP	(4)_____	B Spare Inlet	(11)____
A Normal Inlet	(5)_____	B Normal Inlet	(12)____
A Spare Inlet	(6)_____	A Inverse Recycle	(4AA)____
B Spare Outlet	(7)_____	B Inverse Recycle	(4)____

CELL STATUS

X All four block valves open, by passes closed, inverse recycles close motors running.

Y All four block valves closed, by passes open, inverse recycles open, motors running.

Z any other status. Describe fully on back of this sheet.

Cell No.	TAILS PRESSURE 1	2	3	4	5	6	BLDG. OR CELL DATUM	DATUM PRESSURE	MANUAL OR AUTOMATIC	CELLS STATUS
1										
3										
5										
7										
9										
11										
13										
14										
12										
10										
8										
6										
2										

K-25

RESTRICTED

(Building Foreman's Signature

Time Started _____ Sheet No. 2

Time Finished _____ Building K _____

Date Taken By _____ Shift _____

Date _____

BUILDING BOARD PRESSURES

A Inlet PR 640 _____ psia.

B Inlet PR 65[illegible] _____ psia.

A Outlet PR 6[illegible]3 _____ psia. [redacted]

B Outlet PR 652 _____ psia.

CONTROL VALVE POSITIONS

Cell	1	2	3	4	5	6
1						
3						
5						
7						
9						
11						
13						
14						
12						
10						
8						
6						
4						
2						

_____

(Building Foreman's Signature)

[redacted]

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 3

Building K _____

Shift _____

Date _____

STAGE TEMPERATURES [redacted]

Cell	1	2	3	4	5	6
1						
3						
5						
7						
9						
11						
13						
14						
12						
10						
8						
6						
4						
2						

_____

(Building Foreman's Signature)

[redacted]

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 4

Building X _____

Shift _____

Date _____

LINE RECORDER

Two hours prior to inventory time, set one line recorder on the top cell of the building; set the other line recorder on the middle cell of the building. This middle cell is the middle even number [redacted] RESTRICTED

If only one line recorder is in operation, set this line recorder on the top cell of the building.

Record analysis readings in the tables below every thirty minutes, starting 1½ hours before inventory time. The last reading is to be at inventory time.

"A" MACHINE

Time Read	Cell No.	Pirani Rdg.	Mol. % G-74	Mol. % O_2	Mol. % C3L6

"B" MACHINE

Time Read	Cell No.	Pirani Rdg.	Mol. % G-74	Mol. % O_2	Mol. % C3L6

Use "C" channel, mass 14, for % G-74.

MONEL TRAPS FLASHED BACK TO CASCADE: YES _____ NO _____.

HOKE SAMPLE CARD NO. _____
TAKEN FROM CELL NO. _____
TIME SAMPLE TAKEN _____
_____

_____
(Building Foreman's Signature)

RESTRICTED

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 1

Building K _____

Shift _____

Date _____

BUILDING VALVING

Designate thus: "O" for open; "S" for shut.

A Normal BP	_____	B Normal Outlet	_____
A Spare BP	_____	A Normal Outlet	_____
B Spare BP	_____	A Spare Outlet	_____
B Normal BP	_____	B Spare Inlet	_____
A Normal Inlet	_____	B Normal Inlet	_____
A Spare Inlet	_____	A Inverse Recycle	_____
B Spare Outlet	_____	B Inverse Recycle	_____

CELL STATUS

X All four blocks valves [redacted] open, bypasses closed, inverse recycles closed, motors running.

Y All four block valves closed, bypasses open, inverse recycles open, motors running.

Z Any other status, Described fully on back of this sheet.

CELL NO.	TAILS PRESSURE						MANUAL & AUTOMATIC CONTROL	CELLS STATUS
	1	2	3	4	5	6		
1								
3								
5								
7								
9								
10								
8								
6								
4								
2								

[redacted]

K-27

_____

(Building Foreman's Signature)

Time Started_____ Sheet No. 2

Time Finished_____ Building K_____

Data Taken By _____ Shift_____

Date _____

BUILDING BOARD PRESSURES

A Inlet PI 794_____psia

B Inlet PI 794_____psia

A Outlet PI 794_____psia

B Outlet PI 794_____psia

RESTRICTED

CONTROL VALVE POSITIONS

Cell	1	2	3	4	5	6
1						
3						
5						
7						
9						
11						
13						
14						
12						
10						
8						
6						
4						
2						

RESTRICTED

K-27

_____

(Building Foreman's Signature)

-12

131 SECTION

PROCEDURE FOR TAKING INVENTORY OF BUILDING 131

2. ANNOUNCEMENT OF INVENTORY TIME:

The Area Foreman will notify the Building Foreman of the approximate set inventory time. The Area Foreman on duty will be given this information by telephone from the Central Control Room at least eight hours in advance of inventory time.

Two hours before the set inventory time, the inventory time will be announced over the public address system. This announcement will be repeated a half-hour before inventory time. At the set time, the final announcement will be made.

The Building Foreman of the middle three buildings, 402-4, 402-5, 402-6, will notify the Section 131 Crew Leader by telephone when each of these announcements is made over the public address system.

At shift change, the information will be passed on to the next shift.

STOPPAGE OF FEED:

Thirty minutes (30 min.) before the set inventory time, the Central Control Room will notify the Area Foreman by telephone to stop feed at Section 131; feed is to stop 15 minutes before inventory time. The Area Foreman will notify the Building Foreman who in turn will notify the Section 131 Crew Leader to stop feed. At this time, all drums which have been feeding in the Shipping Drum Feed Room and the Liquid Waste Unloading Room will be disconnected and weighed.

3. TAKING OF DATA:

There are five (5) data sheets for the 131 Section:

Sheet No. 1: This sheet consists of the required instrument readings in the Shipping Drum Feed Room. This data is to be taken by the Crew Leader.

Sheet No. 2: This sheet consists of the required instrument readings in the Liquid Waste Unloading Room. This data is to be taken by the Crew Leader.

Sheet No. 3: This sheet consists of the Drum No., gross, tare, and net weights for all drums in the Liquid Waste Unloading Room.

Sheet No. 4: This sheet consists of the Drum No., gross, tare, and net weights for all drums in the Shipping Drum Feed Room.

Sheet No. 5: This sheet consists of the Drum No., gross, tare, and net weights of all the drums located in bldg. 402-4. These drums are charged to the 131 Bldg.

The taking of instrument data is to start when the final announcement is made over the public address system by the Technical Assistant General Foreman.

Fifteen (15) minutes after the start of taking data, Sheets No. 1 and No. 2 should have been completed.

~~Twenty (20) minutes after the announcement of inventory time, these two sheets for the 131 Building should have been completed.~~ These sheets are then sent to the Middle three-building foreman in K-27. He will examine the sheets for correctness; if any readings seem doubtful, they should be re-checked immediately. If he approves the data, he is to sign the data sheets and send them to the Area Foreman's office along with the data sheets for the middle three buildings.

The only drums which must be weighed are the drums that were taken from the feed units in the Liquid Waste Unloading Room and the Shipping Drum Feed Room. The data on the other drums stored and charged to the 131 Bldg. can be recorded prior to inventory time at the convenience of the Crew Leader; once these drum weights are recorded, the drums can not be transferred to the feed units.

Upon completion, data sheets No. 3, 4, & 5 will be checked by a representative of the Process Materials Dept. When the correctness of the data has been established, he will notify the Inventory Coordinator.

4. INSTRUCTIONS ON TAKING OF DATA:

1. All instrument readings must be recorded as actual pressure and temperature; that is, the instrument factor must be applied to the instrument dial reading.

2. When reading a PI or PR, the instrument must be tapped before the reading is taken.

3. When reading a dial instrument, the eye should be held directly level with the top of the pointer.

4. If a pointer is vibrating or oscillating, the midpoint of the travel is recorded.

5. When weighing the feed drums, the eye should be held directly level with the top of the pointer.

SPECIAL OPERATIONS FOR BUILDING 131

In order that feed may be resumed as fast as possible, the stand-by feed units should have full drums previously weighed and ready to be fed when feed is resumed. These weights should appear on the data sheets.

OPERATIONS AFTER INVENTORY TIME

The Technical Assistant General Foreman will notify the Area Foreman to resume feed. The Area Foreman will notify the Building Foreman to resume feed.

RESTRICTED

Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 1

Building K-131

Shift_____

Date_____

SHIPPING DRUM FEED ROOM

"A" Bath

PRC 102_____PSIA

PR 101_____PSIA

Bath Temp._____°F

"B" Bath

PRC 115_____PSIA

PR 114_____PSIA

Bath Temp._____°F

"C" Bath

PRC 124_____PSIA

PR 123_____PSIA

Bath Temp._____°F

"D" Bath

PRC 133_____PSIA

PR 132_____PSIA

Bath Temp._____°F

Building Foreman's Signature

RESTRICTED

15

Time Started_____ [redacted] Sheet No. 2

Time Finished_____ Building K-131

Data Taken By_____ Shift_____

Date_____

LIQUID WASTE UNLOADING ROOM

"A" Unit

Surface Temp._____°F

PI 463 _____PSI

"B" Unit

Surface Temp._____°F

PI 459 _____PSI

"C" Unit

Surface Temp._____°F

PI 454 _____PSI

_____

Building Foreman's Signature

[redacted]

Time Started ______________

Time Finished ______________

Taken By ______________

RESTRICTED

Sheet No. 3

Building K-131

Shift ______________

Date ______________

LIQUID WASTE ... ROOM

Drum No.	Gross Wt.	Tare Wt.	Net Wt.	Type of Waste

RESTRICTED

____

Building Foreman's Signature

[illegible] ______________

[illegible] Finished ______________

[illegible] Taken By ______________

RESTRICTED

Sheet No. 3

Building K-131

Shift __________

Date __________

LI[illegible]ID [illegible]STE [illegible] ROOM

[illegible]	Gross Wt.	Tare Wt.	Net Wt.	Type of [illegible]

RESTRICTED

Building Foreman's Signature

Time Started_____

Time Finished_____

Data Taken By_____

RESTRICTED

Sheet No. 4

Building K-131

Shift_____

Date_____

SHIPPING DRUM FEED ROOM

Drum No.	Gross Wt. #	Tare Wt. #	Net Wt. #	Type of Feed

RESTRICTED

(Building Foreman's Signature)

Time Started_____

Time Finished_____

Data Taken By_____

RESTRICTED

Sheet No. 4

Building K-131

Shift_____

Date_____

SHIPPING DRUM FEED ROOM

Drum No.	Gross Wt. #	Tare Wt. #	Net Wt. #	Type of Feed

RESTRICTED

(Building Foreman's Signature)

Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 5

Building K-131

Shift_____

Date_____

BUILDING INVENTORY K-131

X-402-4

Drum No.	Gross Wt. #	Tare Wt. #	Net Wt. #	Type of Feed

(BUILDING FOREMAN'S SIGNATURE)

PROCEDURE FOR TAKING INVENTORY OF A 312 BUILDING

1. ANNOUNCEMENT OF INVENTORY TIME:

The area foreman will notify the building foreman of the approximate set inventory time. The area foreman on duty will be given this information by phone from the Central Control Room at least eight hours in advance of the set inventory time.

Two hours before the set inventory time, the inventory time will be announced over the public address system. This announcement will be repeated a half-hour before the set time. At the set time, the final announcement will be made.

The taking of data is to start when the final announcement is made over the public address system.

At shift change, the information will be passed on to the next shift.

2. PREPARATION ON BUILDING OPERATIONS:

Except in emergencies, during the two hour period before inventory time, the following operations will not be made without the permission of the Technical Assistant General Foreman:

1. Valving cells on-stream and off-stream.
2. Placing cells on inverse recycle.
3. Changing of feed point.
4. Changing of feed loop.

3. TAKING OF DATA:

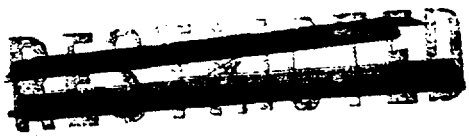
Sheet No. 1: This sheet consists of cell board readings for the odd half of the building, auxiliary instrument readings, and building valving. This sheet is to be filled in by the building crewleader.

Sheet No. 2: This sheet consists of cell board readings for the [illegible] half of the building. This sheet is to be filled in by the utility operator.

Sheet No. 3: This sheet consists of line recorder and space recorder data. This sheet is to be filled in by the line recorder operator.

The taking of data is to start when the final announcement of inventory time is made over the public address system.

Fifteen minutes after the start of taking data, sheets No. 1 and No. 2 should have been completed. The crew leader should turn in the sheets to the building foreman.



Twenty minutes after the announcement of inventory time, the line recorder sheet No. 3 should be completed. The crew leader should collect it and turn it in to the building foreman.

The building foreman should examine the data on all the sheets for correctness. If there are any doubtful readings, they should be checked immediately. If the building foreman approves the data, he is to sign the sheets and send them to the area foreman's office.

All the completed sheets should be at the area foreman's office twenty-five minutes after the start of taking data.

The complete data for the area will be picked up at the area foreman's office by Process Materials Department personnel.

4. INSTRUCTIONS ON TAKING DATA:

1. All readings must be recorded as the actual pressure and temperature; that is, the instrument factor must be applied to the dial reading.

2. When reading a PI or PR, the instrument must be tapped before the reading is taken.

3. When reading a dial instrument, the eye should be held directly level with the tip of the pointer.

4. If a pointer is vibrating or oscillating, the midpoint of the travel is recorded.

5. OPERATIONS AFTER INVENTORY:

Except in emergencies, the operations stated in Part 2: "Preparation of Building Operations" will not be made until the Technical Assistant General Foreman announces the end of the inventory period. If one of the stated operations must be made, notify the Technical Assistant General Foreman.

Normal operations are to be resumed when the announcement that the inventory period is over is made by the Technical Assistant General Foreman. This announcement will come over the public address system.

6. LINE RECORDER OPERATIONS AND INSTRUCTIONS:

Two hours prior to inventory time, set one line recorder on cell No. 11 and the other line recorder on cell No. 17.

Thirty minutes prior to inventory time, record analysis on cell No. 11 and cell No. 17 on the data sheet. Proceed taking analysis of cells in the following order: Drum F-351; cells 18, 21, 7, 11, 17.

Notice that cells No. 11 and No. 17 are checked twice, once at the beginning and once at the end.

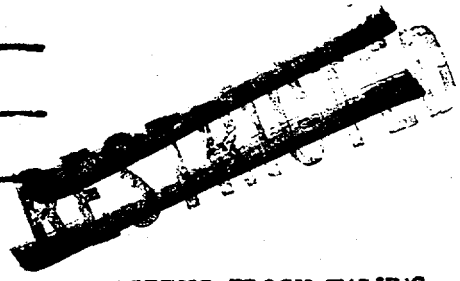
Twenty minutes after inventory time, all of the line recorder analysis should be finished.

Two hours prior to inventory time, have one space recorder on the cell which has the highest 616 concentration at which the space recorder can be operated, and have the other space recorder on the top building cell. At inventory time, record the 616 concentration on these two cells.

Time Started _____

Time Finished _____

Data Taken By _____



Sheet No. 1

Building K _____

Shift _____

Date _____

POSITION OF BUILDING BLOCK VALVES

A Normal Inlet from 306-7	_____	B Normal Outlet to 306-7	_____
A Spare Inlet from 306-7	_____	B Spare Outlet to 306-7	_____
Inlet from 305-12	_____	Outlet to 305-12	_____
Inlet from 304-5	_____	Outlet to 304-5	_____
Inlet: West Feed Loop	_____	Feed Inlet Valve;Cell 5	_____
Inlet: East Feed Loop	_____	Feed Inlet Valve;Cell 7	_____
Outlet: West Feed Loop	_____	Feed Inlet Valve;Cell 9	_____
Outlet: East Feed Loop	_____	Feed Inlet Valve;Cell 13	_____

Designate thus: "S" for shut; "O" for open.

AUXILIARY READINGS

Surge Drum Press; PRC 4037	_____	AGA-Light Cont. Cond.	_____
Surge Drum Temp. TI 4027	_____	PI 4035	_____
Temp: Feed Hdr. from Cell 1	_____	PRC 4040	_____
Aftercooler Temp; East Loop	_____	PR 4044	_____
Aftercooler Temp: West Loop	_____	PRC 4317	_____
Air Output pf PRC 4037	_____	PRC 4030	_____
Building Purge Rate (scf./day)	_____	Var. Freq. (cycles/sec.)	_____
		V.I.W. Pump (RPM)	_____

_____

(Building Foreman's Signature)

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 1 (contd)

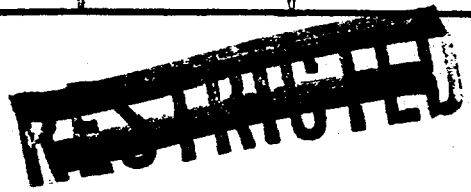
Building K _____

Shift _____

Date _____

CELL BOARD READINGS

Cell & Stage	Tails Press.	Tails Temp.	C.V. Air Press	PI 4002	Low Side Press.
3.1					
3.2					
5.1					
5.2					
7.1					
7.2					
9.1					
9.2					
11.1					
11.2					
13.1					
13.2					
15.1					
15.2					
17.1					
17.2					
19.1					
19.2					
21.1					
21.2					



(Building Foreman's Signature)

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 2

Building K _____

Shift _____

Date _____

CELL BOARD READINGS

Cell & Stage	Tails Press.	Tails Temp.	C.V. Air Press.	PI 4002	Low Side Press.
2.1					
2.2					
4.1					
4.2					
6.1					
6.2					
8.1					
8.2					
10.1					
10.2					
12.1					
12.2					
14.1					
14.2					
16.1					
16.2					
18.1					
18.2					
20.1					
20.2					
22.1					
22.2					

_____

(Building Foreman's Signature)

Time Started _____

Time Finished _____

Data Taken By _____

Sheet No. 3

Building K _____

Shift _____

Date _____

LINE RECORDER DATA

Time	Cell	% C-74	% O_2	%C816
	11			
	17			
	18			
	F-351			
	21			
	7			
	11			
	17			

SPACE RECORDER DATA

No. 1 Space Recorder on Cell _____ % C-616 _____ Time _____

No. 2 Space Recorder on Cell _____ % C-616 _____ Time _____

_____

(Building Foreman's Signature)

[redacted]

601 SECTION

PROCEDURE FOR TAKING INVENTORY OF BUILDING 601

1. ANNOUNCEMENT OF INVENTORY TIME:

The Area Foreman will notify the Building Foreman of the approximate set inventory time. The Area Foreman on duty will be given this information by phone from the Central Control Room at least eight (8) hours in advance of the set inventory time.

Two hours before the set inventory time, the inventory time will be announced over the public address system. This announcement will be repeated half an hour before the set time. At the set time, the final announcement will be made.

The Building Foreman of the bottom three buildings, 311-1, 310-3, and 310-2, will notify the 601 crewleader by phone when each of these announcements is made over the public address system.

The taking of data is to start when the final announcement is made over the public address system.

At shift change, information will be passed on to the next shift.

2. TAKING OF DATA:

There are two data sheets for the 601 Building:

Sheet No. 1: This sheet consists of the required instrument readings.
Sheet No. 2: This sheet consists of the building valving status.

Both data sheets are to be filled in by the 601 crewleader. The taking of data is to start when the final announcement of inventory time is made.

Ten minutes after the start of taking data, both sheets No. 1 and No. 2 should have been completed. The 601 crewleader should have both sheets sent to the bottom three building foreman. The bottom three building foreman should have the sheets fifteen minutes after the start of taking data.

The bottom three building foreman should inspect the data for correctness. If there are any doubtful readings, they should be re-checked immediately. If the building foreman approves the data sheets, he is to sign them and send them to his area foreman's office along with the data sheets for the bottom three buildings.

[redacted]

3. INSTRUCTIONS ON TAKING OF DATA:

1. All readings must be recorded as the actual pressure and temperature; that is, the instrument factor must be applied to the instrument dial reading.

2. When reading a PI or PR, the instrument must be tapped before the reading is taken.

3. When reading a dial instrument, the eye should be held directly level with the tip of the pointer.

4. If a pointer is vibrating or oscillating, the midpoint of the travel is recorded.

[redacted]

Sheet No. 1

Time Started _____

Building K 601

Time Finished _____

Shift _____

Data Taken By _____

Date _____

PRESSURE PSIA.		TEMPERATURE °F		
PI 116	_____	TI 242	Point 36	_____
PI 109	_____		Point 35	_____
PI 118	_____		Point 1	_____
PI 112	_____		Point 2	_____
PI 126	_____		Point 29	_____
PI 127	_____		Point 30	_____
PRC 151	_____		Point 3	_____
PRC 148	_____		Point 4	_____
PR 147	_____		Point 31	_____
PR 158	_____		Point 32	_____
PR 947	_____		Point 5	_____
			Point 6	_____
		TR 944		_____

_____

(Building Foreman's Signature)

[redacted]

Time Started _____

Time Finished _____

Data Taken By _____

[redacted]

Sheet No. 2

Building K 601

Shift _____

Date _____

Positions of the following valves will be marked by placing an "S" for shut and an "O" for open in the space adjoining the valve number.

V 1	_____	V 22	_____
V 2	_____	V 23	_____
V 3	_____	V 24	_____
V 4	_____	V 25	_____
V 9	_____	V 26	_____
V 10	_____	V 27	_____
V 11	_____	V 28	_____
V 12	_____	V 29	_____
V 15	_____	V 30	_____
V 16	_____	V 40	_____
V 17	_____	V 41	_____
V 18	_____	V 96	_____
V 19	_____	V 97	_____
V 20	_____	V 122	_____
V 21	_____	V 123	_____

_____

(Building Foreman's Signature)

[redacted]

631 SECTION

PROCEDURE FOR TAKING INVENTORY OF BUILDING K-631

1. ANNOUNCEMENT OF INVENTORY TIME

The Area Foreman will notify the Building Foreman of the approximate set inventroy time. The Area Foreman on duty will be given this information by telephone from the Central Control Room at least eight (8) hours in advance of the set inventory time.

Two (2) hours before the set inventory time, the inventory time will be announced over the public address system. This announcement will be repeated a half-hour before the set inventory time. At the set time, the final announcement will be made.

The Building Foreman of the bottom three buildings, 402-1, 402-2, 402-3, will notify the Section 631 Crew Leader by telephone when each of these announcements is made over the public address system.

At shift change, the information will be passed on the next shift.

2. STOPPAGE OF WASTE CONDENSATION:

Thirty (30) minutes before the set inventory time the Central Control Room will notify the Area Foreman by telephone to stop condensing waste at Section 631; waste condensation is to cease fifteen (15) minutes before inventory time. The Area Foreman will notify the Building Foreman who in turn will notify the 631 Crew Leader to stop condensing waste.

The waste system should then be evacuated and the material should be drained into drums.

3. TAKING OF DATA:

There are three (3) data sheets for the 631 Section:

Sheet No. 1: This sheet consists of the [illegible] instrument readings. These readings should be taken by the Crew Leader.

Sheet No. 2: This sheet consists of the building valving status. This information should be recorded by the Crew Leader.

Sheet No. 3: This sheet consists of drum weights. This information should be recorded by the waste operator.

The taking of instrument and valving data is to start when the final announcement is made over the public address system.

Fifteen minutes after the start of taking data, sheets No. 1 and No.2 should have been completed. The 631 Section Crew Leader should have these two data sheets sent to the bottom three building foreman. The bottom three-building foreman should have the data sheets twenty (20) minutes after the start of taking data.

The bottom three-building foreman should inspect the data for correctness. If there are any doubtful readings, they should be re-checked immediately. If the building foreman approves the data sheets, he is to sign them and send them to his Area Foreman's office along with the data sheets of the bottom three buildings.

The Area Foreman should have the data sheets in his office twenty-five (25) minutes after the start of taking data. A representative of the Process Materials Department will pick up the data sheets from the Area Foreman's office. When data sheet No. 3 is completed, it will be checked at the 631 building by a representative of the Process Materials Department. If he approves this data sheet, he will notify the Inventory Coordinator.

4. INSTRUCTIONS ON TAKING OF DATA:

1. All instrument readings must be recorded as actual pressure and temperature; that is, the instrument factor must be applied to the instrument dial reading.

2. When reading a PI or PR, the instrument must be tapped before the reading is taken.

3. When reading a dial instrument, the eye should be held directly level with the tip of the pointer.

4. If a pointer is vibrating or oscillating, the midpoint of the travel is recorded.

5. When weighing the waste drums, the eye should be held directly level with the tip of the pointer.

5. OPERATIONS AFTER INVENTORY TIME:

Waste condensation should not be resumed until the Area Foreman is notified by the Technical Assistant General Foreman from the Central Control Room. The Technical Assistant General Foreman will notify the Area Foreman to resume waste condensation.

Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 1

Building K-631

Shift_____

Date_____

Temperature Data—TI 399		
Item	Point No.	Reading
F 631A	1	
B	2	
C	3	
D	4	
E	5	
F	6	
G	14	
H	13	
I	12	
J	11	
K	10	
L	9	
C-631B (in)	7	
C-631B(out)	8	
C-631A (in)	15	
C-631A(out)	16	

Temperature Data—TI 400		
Vent Surge Drum	13	

Pressure Data		
Instrument		Reading
1. A Sys. Surge Feed Hdr.	(PRC 173)	
2. B Sys. Surge Feed Hdr.	(PRC 176)	
3. A Sys. Surge Drum Pr.	(PR 205)	
4. B Sys. Surge Drum Pr.	(PR 188)	
5. J-631A Discharge Pr.	(PR 398)	
6. J-631B Discharge Pr.	(PR 395)	
7. J-631A Suction Pr.	(PI 505)	
8. J-631 B Suction Pr.	(PI 511)	
9. Vent Surge Drum Pr.	(PR 250)	

Note: PI 505 and PI 511 are to be read by opening the valves on the PG side of the guage.

(Building Foreman's Signature)

[redacted]

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Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 2

Building K-631

Shift_____

Date_____

RESTRICTED

Write in the appropriate column "S" for Shut and "O" for Open

VALVE	LOCATION	POSITION
MV-7B	A Normal Block	
MV-1B	B Normal Block	
MV-7A	A Spare Block	
MV-1A	B Spare Block	
MV-5B	Between CV-190 and J-631B	
MV-4B	Between CV-190 and J-631B	
MV-6B	Between CV-190 and MV-7B	
MV-4	B side of Outlet Header	
MV-3	A side of Outlet Header	
MV-3B	Between MV-4 and CV-190	
MV-2B	B side of CV-178	
MV-2	B side of Surge System Crossover	
MV-1	A side of Surge System Crossover	
MV-5A	Between C-631A and MV-7A	
MV-4A	Between CV-207 and J-631A	
MV-6A	Between CV-207 and J-631A	
MF-3A	Between MV-3 and CV-207	
MF-2A	A side of CV-175	
WL B	Waste Withdrawal B side	
WL A	Waste Withdrawal A side	
WR	Waste Withdrawal Crossover	

RESTRICTED

(Building Foreman's Signature)

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Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 3

Building K-631

Shift_____

DATE_____

RESTRICTED

WASTE MATERIAL

Drum No.	Gross Wt. in #	Tare Wt. in #	Condition Full, Partly full, Empty

RESTRICTED

(Building Foreman's Signature)

PROCEDURES FOR TAKING INVENTORY OF K-25 AND K-27 FEED SYSTEMS AND INTERPLANT LINES:

TAKING OF DATA:

Process Materials Department personnel will take the data for the K-25 and K-27 feed systems and interplant lines. These men are to be fully acquainted with the systems as set up at inventory time. Process Operations technical personnel will acquaint the Process Materials men with the systems so that the proper data may be taken at inventory time.

Sheet No. 1: This sheet consists of data on the K-27 feed systems and interplant lines. Instrument locations are in K-27.
Sheet No. 2: This sheet consists of data on the K-25 feed system and interplant lines. Instrument locations are in K-25.
Sheet No. 3: This sheet consists of interplant lines data. Instrument locations are in the 413 Building.

The building foremen of the buildings where readings must be taken will be notified to this effect before inventory time.

~~RESTRICTED~~

Time Started _____ Sheet No. 1

Time Finished _____ K-27

Data Taken By _____

K-25 and K-27 INTERPLANT LINES

K-27 FEED SYSTEM

Feeders in Use	Temp. (Mercoid Setting)	Press. (psia)
1. 3" Plant Hdr. for partially depleted feed. (402-1 to 402-9) Feed Point._____.		_____ PI 182 at feed cell.
2. 2" Hdr. for Crude Feed (402-3 to 402-9) Feed Point _____.		_____ Read Press. of "B" Spare or Normal at front of feed building.
3. "B" Spare or Normal header per bldg. (No. of bldgs. in use)		_____ Same as above.
4. 6" Plant Evac. Hdr. (402-4 to 402-7) Feed Point _____.		_____ PI 537 in Feed Point bldg.
5. 6" Plant Evac. Hdr. (402-7 to 402-9) Feed Point _____.		_____ PI 537 in Feed Point bldg.
6. 3" Hdr. for K-25 Waste (402-3 to 402-9) Feed Point_____.		_____ Read Press. in connecting line, i.e. "B" Spare or 6" Evac. Header.
7. Feed to Cell via 6" bldg. evac. header . Feed Point _____.		_____ Read PI 537 for press.
8. Feed to Cell via 2" bldg. P.G. return Hdr. Feed Point_____.		_____ PI 182 at Cell

~~RESTRICTED~~

Time Started _____ RESTRICTED Sheet No. 1 (con't)

Time Finished _____ K-27

Data Taken By _____

K-25 and K-27 INTERPLANT LINES

K-27 Feed System (con't)

PRESSURE READ ON BLDG. BOARDS P.I.'S

BLDG.	P.I.	PRESSURE	BLDG.	P.I.	PRESSURE
402-1	579	_____	402-5	787	_____
402-2	766	_____	402-6	794	_____
402-3	793	_____	402-7	801	_____
402-4	780	_____	402-8	808	_____
			402-9	815	_____

RESTRICTED

Time Started_____ Sheet No 2

Time Finished_____ K-25

Data Taken By_____

[redacted]

K-25 and K-27 INTERPLANT LINES

K-25 Feed System

Lines	Temp. (Mercoid Setting)	Press.(psia)
1. 6" Section Recycle Hdr. (311-1 to 310-1) and Purge Hdr. (309-3 to 309-1)		Use Press. read at discharge of 6A Pump at feed point cell_____

Feed Headers	Press.(psia)
1. 309-1 via_____ to Feed Cell_____	_____ 6A pump discharge Pressure Feed Cell.
2. 301-2 from 309-1 feed manifold Feed Point_____ _____	_____ 6A Pump discharge Pressure Feed Cell.
3. Through "B" Normal or Spare from 309-1 to Bldg_____. Feed Point_____	_____ 6A Pump discharge Pressure Feed Cell.
4. Through Temp. "B" Header to 302-1. Feed Point_____	_____ Read Pressure on 301-5 Building Board.
5. Any oth e r Feed Point List Lines in Use and Feed Po int.	_____ Read Pressure wherever [illegible].

[redacted]

Time Started _____ Sheet No. 3

Time Finished _____ K-413

Data Taken By _____

K-25 and K-27 INTERPLANT LINES

INTERPLANT LINES SYSTEM

A. IN 413 BLDG.

Line	Temp.	Press. (psia)
K-27 t o K-25	TR 863_____ °F	PR 855_____ PRC 854_____

Diff. line Press._____

B. The following data is to be transposed from data sheets # 1 and # 2, and K-601 Bldg. Data Sheet.

1. From 600 Bldg. Data Sheet

Lines	Temp.	PRess. (psia)
K-25 t o K-27	TR. 944_____ °F	PR. 947_____

2. FROM K-27 Bldg. Data Sheet: In K-27 Bldg.

Press. of line from K-25 to K-27:

Read from PI._____:_____psia.

3. In K-25 Feed Bdlg.

Press. of line from K-27 to K-25

6A Pump discharge Press. in feed cell_____

4

~~RESTRICTED~~

K-25 PURGE & RETURN LINES

DATA TAKEN BY_____ SHIFT_____

DATE_____

304-5 READINGS

CELL 4-6 A PUMP DISCHARGE (PEM 474) _____(PSIA)

CELL 4-AFTER COOLER TEMPERATURE

(TR-34 POINT 7)_____ °F

CELL 2-SURGE DRUM PRESSURE (PI2108)_____(PSIA)

~~RESTRICTED~~

K-25 Purge & Return Lines

[redacted]

DATA TAKEN BY_____ SHIFT_____

DATE_____

306-7 READINGS

A OUTLET STATIC PRESS. (PR 638) _____(PSIA.)

B INLET STATIC PRESS. (PR 650) _____(PSIA.)

CELL 4 AFTER COOLER TEMPERATURE
(TR254 POINT 7) _____ °F

BYPASS HOUSING TEMPERATURES

TI 683 POINT 1 _____ °F

POINT 2 _____ °F

POINT 3 _____ °F

[redacted]

[redacted]

PROCEDURE FOR TAKING INVENTORY OF 302-5 PURGE & PRODUCT ROOM

With the Plant I "Surge for Purge" system at 0.1 psia., the 302-5 P&PH material will be flashed back to the 302-5 surge drums as follows:

Material in the cold traps will be flashed back to one cold trap. This cold trap is to contain all the material to be flashed back to the surge drums. After flashing this cold trap to the surge drums, the cold trap is to be valved off. This trap which contains the remaining material should be kept hot.

After flashing the cold trap to the 302-5 surge drums, the surge drums will be equalized to the cascade. The surge drums must be equalized to the cascade at least two hours before inventory time.

TAKING OF DATA:

When the final announcement of inventory time is made over the public address system, the Building Foreman will notify the operator in 302-5 P&PH by telephone to start taking data. The data sheet should be filled out by the operator in five minutes. Ten (10) minutes after the start of taking data this data sheet should be at the Building Foreman's desk. If he approves the data, he will send this data sheet to his Area Foreman's office along with the data sheets for his three buildings.

[redacted]

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Time Started_____ [redacted] Sheet No. 1

Time Finished_____ Shift_____

Data Taken By_____ Date_____

302-5 PURGE AND PRODUCT ROOM

1. Traps that were purged: _____ and _____.

2. Trap used to equalize with A and/or B surge tanks: _____.

DATA

Temperature

A Trap TR 1115 Point 1_____
Point 2_____

or B Trap TR 1116 Point 1_____
Point 2_____

or C Trap TR 1117 Point 1_____
Point 2_____

Pressure

(A Trap) PR 10444_____psia.

or (B Trap) PR 10446_____psia.

or (C Trap) PR 10448_____psia.

Remarks: _____

_____

_____

_____

_____

[redacted]

46

[redacted]

PROCEDURE FOR TAKING INVENTORY OF "SURGE FOR PURGE" SYSTEMS AND INTERSECTIONAL CELLS NOT IN "SURGE FOR PURGE" SYSTEMS:

PREPARATION OF "SURGE FOR PURGE" SYSTEMS:

The Plant I system is to be evacuated to a uniform pressure of 0.1 psia. and isolated at inventory time.

The Plant II system is to be evacuated to a uniform pressure of 0.2 psia. and isolated at inventory time.

It is the duty of the Plant Supervisors of Plant I and Plant II to coordinate the use of the systems before inventory time so as to have the systems evacuated to the above-stated pressures and isolated at inventory time.

At least two days advance notice will be given the Plant Supervisors of the set inventory time.

It is the duty of the Plant Supervisor to notify the Process Materials Department whenever volume changes are made in the systems so that new volumes and inventory factors may be calculated.

TAKING OF DATA:

Sheet No. 1: This sheet consists of pressure and temperature readings for the Plant I "Surge for Purge" system and intersectional cells.

Sheet No. 2: This sheet consists of pressure and temperature readings for the Plant II "Surge for Purge" system and intersectional cells.

Both sheets are to be filled at inventory time by Process Materials Department personnel.

The building foremen of the buildings where readings and samples must be taken will be notified to this effect before inventory time.

SAMPLES:

Gaseous samples will be taken from the "Surge for Purge" systems and intersectional cells.

Orders to the Field Works Section to take the samples will be written by Process Materials Department.

[redacted]

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Time Started _____ Sheet No. 1

Time Finished _____ Date _____

Data Taken By _____

PLANT I

SURGE FOR PURGE SYSTEM & INTERSECTIONAL CELLS

Building No.	Pressure	Temperature
309-3 Cell 1	PR 1638 _____ PR 1620 _____	TE 1630 Point 8 _____ TE 1631 Point 9 _____ TE 1632 Point 10 _____ TE 1633 Point 11 _____ TE 1634 Point 12 _____ TE 1635 Point 13 _____ TE 1636 Point 14 _____
302-1 Cell 1	PR 751 _____ PR 737 _____	TE 746 Point 5 _____ TE 747 Point 6 _____ TE 748 Point 7 _____ TE 749 Point 8 _____
302-5 Cell 2	PR 1018 _____ PR 1038 _____ PR 1037 _____ PR 1056 _____	Point 1 _____ TE 1024 Point 6 _____ TE 1004 Point 5 _____
311-1 Cell 1	PI 832 _____ PRC 818 _____ PR 820 _____ PRC 819 _____ PR 821 _____	TE 838 Point 2 _____ TE 810 Point 4 _____ TE 811 Point 3 _____
301-5 Cell 2	PR 1691 _____	TE 1688
310-1 Cell 2	PR 767 _____	

Time Started_____

Time Finished_____

Data Taken By_____

Sheet No. 2

Date_____

PLANT II

SURGE FOR PURGE SYSTEM

BUILDING NO.	PRESSURE	TEMPERATURE
303-1 Cell 1	PR 1373_____ PR 1387_____	TE 1382 Point 8_____ TE 1383 Point 9_____ TE 1384 Point 10_____ TE 1385 Point 11_____
303-10 Cell 2	PI 1425_____ PI 1407_____	TE 1440 Point 4_____ TE 1455 Point 6_____ TE 2266 Point 7_____ TE 2267 Point8_____
304-1 Cell 1	PR 1731_____ PR 1743_____	TE 1740 Point 8_____ TE 1741 Point 9_____
305-1 Cell 1	PR 1832_____ PR 1820_____	TE 1829 Point 8_____ TE 1830 Point 9_____
305-12 Cell 2	PR 2143_____	
306-1 Cell 1	PR 1930_____ PR 1942_____	TE 1939 Point 8_____ TE 1940 Point 9_____
304-5 Cell 2	PI 2108_____	

PRODUCT WITHDRAWAL

Eight (8) hours in advance of the Set inventory time the Central Control Room will notify the Area Foreman in Area # 6 of the approximate set inventory time. The Area Foreman in conjunction with the Technical Assistant General Foreman should schedule the product withdrawal so that the last cylinder of product will be withdrawn at least fifteen (15) minutes before inventory time. Product withdrawal will be stopped fifteen (15) minutes before inventory time. At Inventory time, no product cylinders (either empty or full) should be at the withdrawal station.

Fifteen minutes after inventory time an empty cylinder can be brought to the withdrawal station and readied for use.

OPERATIONS AFTER INVENTORY TIME

When an announcement is made over the public address system stating that the Inventory Period is over, Product withdrawal will resume at the discretion of the Area Foreman and the T. A. G. Foreman.